

1.	Title of the course	Sorption Cooling and Heating Systems
2.	Course number	ME534L
3.	Structure of credits	2-1-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To ME5042/21
6.	To be offered by	Department of Mechanical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	CoT
9.	Course Objective(s): To introduce concepts of thermally operated adsorption and absorption refrigeration systems. To discuss principles, thermodynamic analysis and component design of absorption systems.	
10.	Course Content: Fundamental of absorption cycles; Classification of sorption systems: absorption and adsorption systems, dry and wet types; Working principles of sorption refrigeration system; Heat pump and heat transformer; Refrigerant absorbent combination: Water-Lithium Bromide and Ammonia-Water solution thermodynamics; Analysis of Water-Lithium Bromide system: half, single, double and triple effects systems; Analysis of heat storage systems and heat transformer; Analysis of Ammonia-Water cycles: single and double stage systems; Multi stage systems for low temperature applications; Comparison between absorption and adsorption system; Different adsorbent – refrigerant combinations; Analysis of adsorption cooling systems for continuous cold generation.	
11.	Textbook(s): 1. Gosney W B, <i>Principles of Refrigeration</i> , 1st Edition, Cambridge University Press (1982).	
12.	Reference(s): 1. Herold K E, Radermacher R and Keli S A, <i>Absorption Chillers and Heat Pumps</i> , 2nd Edition, CRC Press (2016).	